

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An apparatus for playing video content, the apparatus including:

a video content storage that stores at least one video stream;

a scene defining processor that defines overlapping scene intervals including a time spacing between beginnings of overlapping scene intervals in the at least one video stream, wherein the time spacing between the beginnings of overlapping scene intervals is selected based on a characteristic of the at least one video stream;

a signature processor that computes a scene signature for each of the overlapping scene intervals, the video content storage storing the scene signatures of the at least one video stream;

a selector that selects a scene signature which is descriptive of video content of a scene a user wants to view;

a comparator that compares the selected scene signature with scene signatures of the stored at least one video stream to

identify one or more scenes whose scene signature is similar to the selected scene signature; and

a player that plays the at least one scene whose scene signature is identified as similar to the selected scene signature.

2. (Previously presented) The apparatus as set forth in claim 1, wherein each scene has a length between 30 seconds and 10 minutes, and the scenes of the stored at least one video streams stream are overlapped at intervals between 1 second and 2 minutes.

3. (Previously presented) The apparatus as set forth in claim 1, wherein the scene signatures of the stored at least one video streams stream are constructed using principal components vectors, the principle components vectors being computed by principle component analysis of selected low level features of the video content within the scene.

4. (Previously presented) The apparatus as set forth in claim 3, wherein the low level features are selected from a group consisting of: an image luminance difference parameter, a frame complexity parameter, a mean absolute difference (MAD) motion

estimation parameter, a motion parameter, and an image texture parameter.

5. (Previously presented) The apparatus as set forth in claim 1, wherein the selector selects a scene signature of a currently playing scene as the selected scene signature.

6. (Previously presented) The apparatus as set forth in claim 1, wherein the comparator identifies a similar scene, which has a smallest signature comparison figure of merit relative to the selected scene signature.

7. (Previously presented) The apparatus as set forth in claim 1, wherein the comparator determines whether the stored scene signatures of the stored at least one video streams stream are similar to the selected signature within a predetermined threshold, the player playing a scene whose signature is within the threshold.

8. (Previously presented) The apparatus as set forth in claim 7, further including:

a threshold selector that selects the threshold value.

9. (Previously presented) The apparatus as set forth in claim 1, wherein the video content includes a plurality of video streams, and the apparatus further includes:

a stream hop selector that selects a current stream which the player is playing; and

a stream hopper that compares scene signatures of scenes of the current stream with scene signatures of the plurality of video streams to identify a similar video stream, the stream hopper causes the player to transfer the playing to the similar stream.

10. (Previously presented) The apparatus as set forth in claim 1, further including:

a scene signatures table for storing the scene signatures arranged by similarity between the scene signatures, the comparator accesses the scene signatures table to identify the similar scenes.

11. (Previously presented) The apparatus as set forth in claim 10, wherein the signature processor stores the scene signatures in the scene signatures table.

12. (Previously presented) The apparatus as set forth in claim 11, wherein the signature processor includes:

a low level feature processor that computes one or more low level video content features;

a principle components projector that projects the low level video content features onto a principle components space to define principle components vectors; and

a scene signature generator that combines the principle components vectors of each scene to define the corresponding scene signature.

13. (Previously presented) The apparatus as set forth in claim 11, further including:

a recorder that records video content, the signature processor computes the scene signatures as the video content is recorded.

14. (Canceled)

15. (Currently amended) The apparatus as set forth in claim 141, wherein the scene defining processor selects ~~a~~the spacing between a beginning of each of the overlapping scene intervals based on a

characteristic of the video content an amount of activity occurring in the at least one video stream.

16. (Previously presented) The apparatus as set forth in claim 1, wherein the selector selects the scene signature from a group of semantically identified scene signature values.

17. (Currently amended) A method for playing video content, the method including:

defining overlapping scene intervals including a time spacing between beginnings of overlapping scene intervals in at least one stored video stream, each scene interval defining a scene, wherein defining overlapping scene intervals includes selecting the time spacing between the beginnings of overlapping scene intervals based on a characteristic of the at least one video stream;

computing a scene signature over each overlapping scene interval, the computed scene signature describing a composite of characteristics of frames of the scene;

storing the computed scene signatures;

selecting a scene signature;

comparing the selected scene signature with the stored scene

signatures which describe overlapping scenes of at least one stored video stream to identify at least one scene signature that is similar to the selected scene signature; and

playing at least one scene whose scene signature is identified as similar to the selected stream signature.

18. (Previously presented) The method as set forth in claim 17, wherein the comparing of the selected scene signature with the stored scene signatures includes:

computing a scene comparison figure of merit comparing the selected scene signature and each compared scene signature of the stored scene signatures;

quantitatively comparing the scene comparison figure of merit with a threshold; and

based on the computing and quantitative comparing, selecting the similar scene signature.

19. (Previously presented) The method as set forth in claim 17, further including:

computing the stored scene signatures based on motion parameters of the at least one video stream.

20. (Previously presented) The method as set forth in claim 19, wherein the computing of the stored scene signatures includes:

performing principle components analysis of the motion parameters to produce principle component vectors; and combining the principle component vectors within the each scene to define the corresponding scene signature.

21. (Original) The method as set forth in claim 19, further including:

recording the at least one stored video stream prior to the selecting, the computing of the stored scene signatures being performed during the recording.

22. (Currently amended) The method as set forth in claim 1917, wherein the ~~computing of the stored scene signatures includes:~~

~~defining overlapping scene intervals in the at least one stored video stream, each scene interval defining a scene; and~~
~~computing a scene signature over each scene interval includes~~
~~selecting the spacing between a beginning of each of the~~
~~overlapping scene intervals based on an amount of activity~~

occurring in the at least one video stream.

23. (New) The apparatus as set forth in claim 1, wherein the scene defining processor selects the spacing between a beginning of each of the overlapping scene intervals such that an action video has shorter and more closely overlapped scene intervals than a video of a slower cinematic genre.

24. (New) The method as set forth in claim 17, wherein the defining overlapping scene intervals includes selecting the spacing between a beginning of each of the overlapping scene intervals such that an action video has shorter and more closely overlapped scene intervals than a video of a slower cinematic genre.